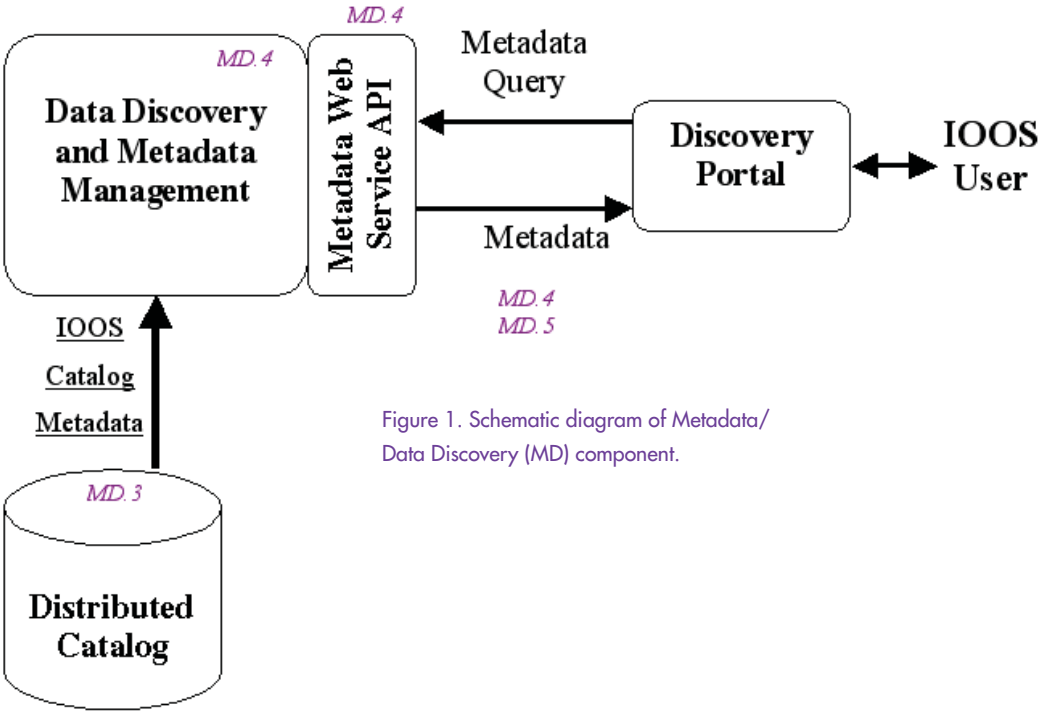

Figure 1. Schematic diagram of Metadata/ Data Discovery (MD) component.

1. Metadata/Data Discovery (MD) Requirements

(MD – Metadata; MMS – Metadata Management System; MC – Metadata Catalog)

1. Nature of Metadata

1.1. The IOOS MD shall be supplied using the guidelines established by the Federal Geographic Data Committee (FGDC) augmented by any applicable supplemental profiles.

1.2. The DMAC shall provide the capability to deliver metadata along with data delivery.

1.3. The MMS shall provide a mechanism to ensure that metadata found during data discovery are up to date, consistent, and understandable.

1.4. The MMS shall provide mechanisms for extensibility of the metadata.

1.5. The MD shall provide a framework for data versioning, data lineage tracking, and information citations.

1.6. The MD shall provide a framework for both semantic and syntactic metadata.

1.7. The MC shall provide a metadata query mechanism that supports access through a programming interface to any/all metadata fields.

1.8. The MMS shall support multiple standards that exist today and be able to extend beyond those to include expected future metadata standards.

1.8.1. Existing standards: FGDC; Biological Profile; Shoreline Profile, TBD
1.8.2. Possible future standards: TBD

2. Metadata Management System. The IOOS will include a master metadata management system.

2.1. The MMS shall be implemented as a distributed system that connects to all DMAC-compliant metadata holdings within the ocean community.
2.2. The MMS shall provide the capability for data providers to manage their metadata within a local system or through a centralized system via remote-access capabilities.
2.2.1. The MMS shall not require the data provider to maintain duplicate copies of metadata in two or more systems.
2.2.2. The MMS shall support a linkage between data discovery and data access that an application may utilize transparently to access both remote and local data via the DMAC Data Transport (DT).
2.3. The MMS shall include mechanisms to generate, validate and maintain metadata.
2.4. The MMS shall include a set of TBD controlled vocabularies for items such as keywords, entities and attributes, units, and other items to be determined.
2.5. The MMS shall provide support for parent/child metadata.
2.6. The MMS shall provide a mechanism for validation and approval of metadata.
2.7. The MMS shall include an automated metadata maintenance capability for checking URL links and any additional information within the metadata record that can be automated.
2.8. The MMS shall include mechanisms to facilitate the generation of metadata as close as possible to the collection and/or generation of the source data.
2.9. The MMS shall provide automated tools for versioning and configuration management of metadata.
2.10. The MMS shall provide a mechanism to access existing metadata servers to promote harvesting metadata.

3. Metadata Catalog. The MMS shall include a metadata catalog.

3.1. The implementation of the metadata catalog is TBD, but it is a requirement that the collective holdings of metadata shall comprise a distributed catalog. The implementation shall provide for integration of all such distributed sub-catalogs.
3.2. The catalog shall provide a capability to generate metadata records from self-describing data sources in which metadata and data have been integrated.
3.3. The catalog contents shall include items that will be used for discovery.
3.3.1. The catalog shall provide access control of metadata records, for maintenance and for viewing and searching on those records.
3.3.2. The catalog shall allow a catalog search from public search engines.